

Appl. No. 10/049,417
Response dated: September 16, 2005
Reply to Office action of June 17, 2005

REMARKS

In response to the Office Action dated June 17, 2005, Applicants respectfully request reconsideration based on the above claim amendments and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 1-29 are pending in the present Application. Claims 11 and 17 have been amended and Claim 30 has been added, leaving Claims 1-30 for consideration upon entry of the present amendments and following remarks.

Support for the claim amendments can at least be found in the specification, the figures, and the claims as originally filed. Particularly, support for the amendments to Claims 11 and 17 is at least found in the specification page 4, line 25 to page 5, line 7 and page 24, line 26 to page 29, line 15.

No new matter has been introduced by these amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Double Patenting

Claims 11-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 11 and 12 of copending Application No. 10049415. Although the conflicting claims are not identical, they are not patentably distinct from each other because each is drawn to processing a plurality of input signals to create a specific processed audio signal.

In response, Applicants submit that Claims 11-13 in copending application 10048415 have been canceled. Therefore, the double patenting rejection has been rendered moot. Reconsideration and withdrawal of the relevant rejection is respectfully requested.

Claim Rejections Under 35 U.S.C. §102

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

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Regarding Claims 11-13 and 17

Claims 11-13 and 17 are rejected under 35 U.S.C. §102(b) as being anticipated by Kendall et al., U.S. Patent No. 4,731,848 (hereinafter "Kendall").

Amended Claim 11 recites, *inter alia*,

"A method of representing an audio signal, wherein said audio signal is decomposed to a signal comprising N directional components and according to an audio signal format comprising N components, each of said N components representing a direction, said N components being uncorrelated and said N components being defined according to a uniform or experience-based distribution."

Kendall discloses a spatial reverberator comprising one input signal (12) and one early pattern generator (20) receiving the input signal (12) and establishing an output having N directional components (some of 1-M). That is, the directional components of Kendall are defined according to an image source model of a specifically defined according to an *image source model* of a specifically defined rectangular room.

Therefore, Kendall does not disclose N components being defined according to a uniform or experience-based distribution as recited in amended Claim 11.

Claims 12 and 13 recite, *inter alia*,

"M sub-signals, each of said M sub-signals comprising N components, each of said N components representing a direction; and

wherein said M sub-signals are added to form a sum-signal comprising N sum-components, each of said N sum-components representing a direction, each of said N sum-components being a sum of said M sub-signals corresponding to said N components."

Kendall is silent as to disclosing how outputs could be combined into a common output. Kendall also does not disclose more than one signal. Kendall would allow several input signals to be processed only by providing several instances of the full application of Fig. 2A, i.e. both the early pattern circuits and the direction rendering circuit, and then summing together the signals.

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Therefore, Kendall does not disclose M sub-signals comprising N components, each of said N components representing a direction, and adding said M sub-signals to form a sum-signal comprising N sum-components as recited in Claims 12 and 13.

Furthermore, Kendall does not disclose M sub signals being established by room-simulation, but only discloses a single input signal. Therefore, Kendall does not further disclose M sub-signals are results of a room-simulation using room-simulators as further recited in Claim 13.

Amended Claim 17 recites, *inter alia*,

"M and N directional components form an audio signal in accordance with an audio signal format comprising M components, each of said M components representing a direction, said M components being uncorrelated and said M components being define according to a uniform or experience-based distribution."

It appears from the rejection details in Item 4. of the Office Action that the M and N referred to in Claim 17 is being considered the same as the M and N referred to in Claims 11-13. Applicants respectfully submit that the M and N of Claim 17 does not correspond with the M and N of Claims 11-13, as described in the specification, for example, at page 9, line 30 through page 11 line 13. Claim 17 relates to a direction rendering part of the invention.

Kendall discloses a set of directionalizers receiving M input directional components (1-M) and establishing N output directional components. The direction components of Kendall are directed to an *image source model* of a specifically designed rectangular room.

Therefore, Kendall does not disclose M and N directional components form an audio signal in accordance with an audio signal format comprising N components, each of said N components representing a direction, said N components being uncorrelated and said N components being defined according to a uniform or experience-based distribution as recited in amended Claim 17.

Thus, Kendall does not disclose at least all of the limitations of amended Claims 11 and 17, and Claims 12 and 13. Accordingly, Kendall does not anticipate amended Claims 11 and 17, and Claims 12 and 13. Applicants respectfully submit that Claims 11-13 and 17 are not further objected or rejected and are thus allowable. Reconsideration and allowance of Claims 11-13 and 17 is respectfully requested.

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Regarding Claims 1, 2, 4, 14-16, 18-21, 23, 24 and 26

Claims 1, 2, 4, 14-16, 18-21, 23, 24 and 16 are rejected under 35 U.S.C. §102(e) as being anticipated by Kawakami, U.S. Patent No. 6,157,724 (hereinafter "Kawakami").

Claim 1 recites, *inter alia*, "N components, each of said N components representing a direction, said N components being uncorrelated."

Kawakami discloses a system for introducing a music sound into a room and establishing acoustic feedback in order to improve the reverberation or the perceived volume of the room. (Col. 4, lines 61-65.) Kawakami outputs the sound from an electric piano through speaker mounted on the piano. Microphones also mounted on the piano pick up the reverberant sound of the room, apply FIR filtering to the sound signals, and output the sound signals through the speakers again together with the sound established by the piano. According to Kawakami at Col. 5, lines 49-54, continuous repositioning of the microphones is simulated thereby obtaining "spatial averaging." That is, there is no direction component or means for representing, processing or maintaining directional information disclosed in Kawakami.

Therefore, Kawakami does not disclose N components, each of said N components representing a direction as recited in Claim 1.

Since Kawakami does not disclose the "N components representing a direction," Kawakami necessarily does not disclose the "N components is at least three (3)" and "the said directions are three-dimensional directions" as recited in at least Claims 2 and 4.

Thus, Kawakami does not disclose at least all of the limitations of Claims 1, 2 and 4. Accordingly, Kawakami does not anticipate Claims 1, 2 and 4. Applicants respectfully submit that Claims 1, 2 and 4 are not further objected or rejected and are thus allowable. Reconsideration and allowance of Claims 1, 2 and 4 is respectfully requested.

Claim 14 recites, *inter alia*, "establishing at least two directional signal components, said directional signal components being uncorrelated."

As discussed above for Claim 1, Kawakami does not disclose a direction component or means for representing, processing or maintaining directional information. Therefore,

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Kawakami does not disclose establishing at least two directional signal components as recited in Claim 14.

Claim 15 recites, *inter alia*, "said audio signal is a room processed signal."

Applicant respectfully submits that the rejection details in the Office Action appear to equate the "room processed signal" of Claim 15 with an open-air or physical room. As described at least at page 8, line 16 through page 9, line 16, "room processed" refers to applying room simulation to an audio signal. Therefore, Kawakami does not disclose audio signal is a room processed signal as claimed.

Thus, Kawakami does not disclose at least all of the limitations of Claims 14 and 15. Accordingly, Kawakami does not anticipate Claims 14 and 15. Applicants respectfully submit that Claims 14 and 15 are not further objected or rejected and are thus allowable. Claim 16 is also rejected under 35 U.S.C. §102(e) as being anticipated by Kawakami. However, as Claim 16 depends from allowable Claim 14, it is thus correspondingly allowable. Reconsideration and allowance of Claims 14-16 is respectfully requested.

Claim 18 recites, *inter alia*,

"at least one input for receiving M directional components; and means for transforming said M input directional components into N output channels according to at least one rendering method stored in associated storing means."

As discussed above, Kawakami discloses having three inputs, processing the three signals and outputting them to three outputs. Additionally, Kawakami does not disclose a direction component or means for representing, processing or maintaining directional information. That is, there is no transformation from one number of signal components to a different number of signal components, nor any directionality in Kawakami.

Therefore, Kawakami does not disclose at least one input for receiving M directional components and means for transforming said M input directional components into N output channels as recited in Claim 18.

Thus, Kawakami does not disclose at least all of the limitations of Claim 18. Accordingly, Kawakami does not anticipate Claim 18. Applicants respectfully submit that Claim 18 is not further objected or rejected and is thus allowable. Claims 19-21 are also rejected under

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35 U.S.C. §102(e) as being anticipated by Kawakami. However, as Claims 19-21 depend from allowable Claim 18, they are thus correspondingly allowable. Reconsideration and allowance of Claims 18-21 is respectfully requested.

Claim 23 recites, *inter alia*,

"multi-channel data carrier, comprising a plurality of audio channels, at least two of said audio channels representing a directional signal with respect to a virtual listener/reference position"

As discussed above, Kawakami does not disclose a direction component or means for representing, processing or maintaining directional information. Therefore, Kawakami does not disclose at least two of said audio channels representing a directional signal with respect to a virtual listener/reference position as recited in Claim 23.

Kawakami also does not disclose any rendering system, nor any audio signals established independently of the rendering system. Therefore, Kawakami does not disclose the audio channels are established independently of a subsequent rendering system as recited in Claim 24.

Thus, Kawakami does not disclose at least all of the limitations of Claims 23 and 24. Accordingly, Kawakami does not anticipate Claims 23 and 24. Applicants respectfully submit that Claims 23 and 24 are not further objected or rejected and are thus allowable. Claim 26 is also rejected under 35 U.S.C. §102(e) as being anticipated by Kawakami. However, as Claim 26 depends from allowable Claim 23, it is thus correspondingly allowable. Reconsideration and allowance of Claims 23, 24 and 26 is respectfully requested.

Claim Rejections Under 35 U.S.C. §103

Claims 3, 5-10, 22, 25, 28 and 29 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kawakami.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir.

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1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Dependent claims inherit all of the limitations of the respective parent claim.

Claims 3, 5-10, 22, 25, 28 and 29 variously depend on Claims 1, 18 and 23. As discussed above, *Kawakawi does not teach or suggest all of the limitations* of Claims 1, 18 and 23.

Correspondingly, *Kawakawi does not teach or suggest all of the limitations* of Claims 3, 5-10, 22, 25, 28 and 29. Thus, *prima facie* obviousness does not exist regarding Claims 3, 5-10, 22, 25, 28 and 29 with respect to the *Kawakawi* patent.

Additionally, since *Kawakawi* fails to teach or suggest all of the limitations of Claims 3, 5-10, 22, 25, 28 and 29, clearly, one of ordinary skill at the time of Applicants' invention would not have a *motivation to modify or combine the reference*, nor a reasonable likelihood of success in forming the claimed invention by modifying *Kawakawi*. Thus, here again, *prima facie* obviousness does not exist. *Id.*

Thus, *prime facie* obviousness does not exist regarding Claims 3, 5-10, 22, 25, 28 and 29. Claims 3, 5-10, 22, 25, 28 and 29 are not further rejected or objected, and Applicants respectfully submit that these claims are allowable to Applicants. Reconsideration and allowance of the claims is respectfully requested.

Allowable Subject Matter

Applicant gratefully acknowledges the Examiner's noting the allowable subject matter in Claim 27. Applicants respectfully submit that independent Claim 23, from which Claim 27 depends, is not anticipated nor obvious over the cited references, as discussed above. As such, Applicants have not rewritten Claim 27 in independent form at this time.

Conclusion

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference

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with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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